

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-25 (Canceled).

Claim 26 (Currently Amended): A developing apparatus comprising:

a substrate holding unit that holds a substrate in a horizontal attitude, the substrate having an exposed resist thereon;

a rotational drive mechanism that rotates the substrate holding unit, holding the substrate, around a vertical axis;

a developer nozzle that ejects a developing solution toward the substrate, the developer nozzle having an ejection port having a shape of an elongated slit, the ejection port having a length, measured in a longitudinal direction thereof, smaller than a radius of the substrate;

a moving mechanism that moves the developer nozzle in a substantially radial direction of the substrate, the moving mechanism including a nozzle support unit to support the developer nozzle; and

a control unit that controls the rotational drive mechanism and the moving mechanism,

wherein the nozzle support unit of the moving mechanism is configured to support the developer nozzle such that a longitudinal direction of the ejection port is oriented parallel to a moving direction of the developer nozzle in which the developer nozzle moves in the radial direction of the substrate when the ejection port is located above the substrate; and

wherein the control unit is configured to control the rotational drive mechanism, the developer nozzle and the moving mechanism such that the developer nozzle is moved from a peripheral portion of the substrate toward the center portion of the substrate while

ejecting the developing solution in a form of a strip through the ejection port and while rotating the substrate around the vertical axis at a rotation speed not less than 500 rpm, thereby to supply the developing solution to a surface of the substrate in a spiral form, and thereafter the developer nozzle is configured to be stopped above the center portion of the substrate while ejecting the developing solution, thereby to supply the developing solution to the center portion of the substrate that is rotating.

Claim 27 (Previously Presented): The developing apparatus according to claim 26, wherein the ejection port has a width in a range of 0.1 mm to 1 mm and a length in a range of 8 mm to 15 mm.

Claim 28 (Previously Presented): The developing apparatus according to claim 26, further comprising:

a temperature regulating unit for controlling temperature of the developing solution to be supplied from the developer nozzle according to a type of the resist on the substrate or a specific geometrical characteristic of a pattern of the resist.

Claim 29 (Previously Presented): The developing apparatus according to claim 26, wherein:

said apparatus includes plural number of said developer nozzles, and each of the developer nozzles is provided with a temperature regulating unit to control the temperature of a developing solution,

said developing apparatus further comprising means for selecting a particular one of the plurality of developer nozzles, wherein the temperature of the selected developer nozzle

has been adjusted according to a type of the resist to be developed on the substrate or a specific geometrical characteristic of a pattern of the resist.

Claim 30 (Currently Amended): The developing apparatus according to claim 29, wherein the temperature regulating units are configured to operate such that, while said one developer nozzle is selected, the temperature of a developing solution for another developer nozzle is adjusted.

Claim 31 (Previously Presented): The developing apparatus according to claim 28, further comprising a control unit for:

storing data showing a relationship between types of resists on the substrate to be developed or specific geometrical characteristics of patterns of the resists and developing solution temperatures suitable therefor; and

controlling, based on the data, the temperature regulating unit to adjust the temperature of a developing solution to a value suitable for a resist to be developed.

Claim 32 (Previously Presented): The developing apparatus according to claim 29, wherein:

each of the developer nozzles is provided with, in addition to the temperature regulating unit, a concentration control unit for controlling a concentration of the developing solution;

the temperature and the concentration of the developing solution for a selected developer nozzle are adjusted according to the type of the resist or the specific geometrical characteristic of the pattern of the resist.

Claim 33 (Currently Amended): The developing apparatus according to claim 32, wherein the temperature regulating units are configured to operate such that, while one developer nozzle is selected, the temperature and the concentration of a developing solution for another developer nozzle are adjusted, and wherein the concentration control units are configured to operate such that while said one developer nozzle is selected, the concentration of a developing solution for another developer nozzle is adjusted.

Claim 34 (Previously Presented): The developing apparatus according to claim 32, further comprising a control unit for:

storing data showing a relationship between: types of resists or specific geometrical characteristics of patterns of the resists; and developing solution temperatures suitable therefor and developing solution concentrations suitable therefor; and

controlling, based on the data, the temperature regulating unit and the concentration control unit to adjust the temperature and the concentration of a developing solution to values suitable for a resist to be developed.

Claim 35 (Previously Presented): The developing apparatus according to claim 26, further comprising:

a surface treatment liquid nozzle that supplies a surface treatment liquid to the surface to enhance wettability of the surface before the developing solution is supplied to the surface of the substrate.

Claim 36 (Currently Amended): The developing apparatus according to claim 26, further comprising:

a rinse liquid nozzle that supplies a rinse liquid to the surface of the substrate after the developing solution is delivered to the surface; and

~~a surfactant supply nozzle that supplies a surfactant to the surface of the substrate after the rinse liquid is supplied to the surface through the rinse liquid nozzle~~

a moving mechanism that moves the rinse liquid nozzle in a substantially radial direction of the substrate,

wherein the control unit is also configured to control the rinse liquid nozzle and the moving mechanism for the rinse liquid nozzle such that, before two seconds have passed from a point of time when the supplying of the developing solution is stopped, the rinse liquid nozzle starts supplying the rinse liquid to the center portion of the substrate that is rotating, with the rinse liquid nozzle being located above the center portion of the substrate.

Claim 37 (Currently Amended): The developing apparatus according to claim 26, wherein the control unit is configured to control the moving mechanism such that movement of the developer nozzle from the ~~[[outer]]~~ peripheral portion of the substrate toward the center portion of the substrate is stopped when an end, on a side of the center portion of the substrate, of the ejection port of the developer nozzle has reached a position corresponding to the rotational axis of the substrate.

Claim 38 (Withdrawn): A developing method comprising:

holding a substrate in a horizontal attitude on a substrate holding unit, the substrate having an exposed resist thereon;

moving a developer nozzle having an ejection port having a shape of an elongated slit whose length measured in a longitudinal direction thereof is smaller than a radius of the substrate, while a moving direction of the developer nozzle being oriented parallel to the

longitudinal direction of the ejection port, and while ejecting a developing solution in a form of a strip from the ejection port, thereby spirally supplying the developing solution onto a surface of the substrate while allowing the developing solution to flow radially outwardly; and

stopping supplying the developing solution through the developer nozzle and supplying a rinse liquid to the surface of the substrate through a rinse liquid nozzle.

Claim 39 (Withdrawn): The developing method according to claim 38, wherein the ejection port of the developer nozzle has a width in a range of 0.1 mm to 1 mm and a length in a range of 8 mm to 15 mm.

Claim 40 (Withdrawn): The developing method according to claim 38, wherein the temperature of the developing solution is controlled according to a type of the resist, to be developed, on the substrate or a specific geometrical characteristic of a pattern of the resist.

Claim 41 (Withdrawn): The developing method according to claim 38, further comprising:

selecting one of a plurality of developer nozzles, which have been set to eject developing solutions at different temperatures, based on a type of the resist to be developed on the substrate or a specific geometrical characteristic of a pattern of the resist.

Claim 42 (Withdrawn): The developing method according to claim 41, further comprising:

while one developer nozzle is selected, adjusting the temperature of a developing solution for another developer nozzle.

Claim 43 (Withdrawn): The developing method according to claim 38, wherein the temperature and concentration of the developing solution are controlled according to a type of the resist, to be developed, on the substrate or a specific geometrical characteristic of a pattern of the resist.

Claim 44 (Withdrawn): The developing method according to claim 43, further comprising:

while one developer nozzle is selected, adjusting the temperature and concentration of a developing solution for another developer nozzle.

Claim 45 (Withdrawn): The developing method according to claim 38, further comprising:

moving the rinse liquid nozzle to a position near the developer nozzle before the developer nozzle stops ejecting the developing solution.

Claim 46 (Withdrawn): The developing method according to claim 38, wherein the developing solution supplying includes moving the developer nozzle from the periphery of the substrate toward the center portion of the substrate a plurality of times while ejecting a developing solution through the developer nozzle.

Claim 47 (Withdrawn): The developing method according to claim 38, wherein the developing solution supplying includes supplying the developing solution to the center portion for a predetermined period of time, after moving the developing solution nozzle from the periphery of the substrate toward the center portion of the substrate.

Claim 48 (Withdrawn): The developing method according to claim 38, further comprising:

supplying a surface treatment liquid to the surface of the substrate to enhance wettability of the surface of the substrate, before supplying the developing solution.

Claim 49 (Withdrawn): The developing method according to claim 38, further comprising:

supplying a rinse liquid to the surface of the substrate after supplying the developing solution; and

supplying a surfactant to the surface of the substrate, after supplying the rinse liquid.

Claim 50 (Withdrawn): The developing method according to claim 38, wherein movement of the developer nozzle from the outer portion of the substrate toward the center portion of the substrate is stopped when an end, on a side of the center portion of the substrate, of the ejection port of the developer nozzle has reached a position corresponding to the rotational axis of the substrate.

Claim 51 (New): The developing apparatus according to claim 26, further comprising:

a rinse liquid nozzle that supplies a rinse liquid to the surface of the substrate after the developing solution is delivered to the surface,

wherein the moving mechanism includes a nozzle arm that holds both the developer nozzle and the rinse liquid nozzle in such a manner that an axis of an ejection port of the rinse



liquid nozzle is directed toward the center portion of the substrate when the developer nozzle is stopped at a position above the center portion of the substrate.

Claim 52 (New): The developing apparatus according to claim 51, further comprising:

a surfactant supply nozzle that supplies a surfactant to the surface of the substrate after the rinse liquid is supplied to the surface thorough the rinse liquid nozzle, wherein the nozzle arm of the moving mechanism also holds the surfactant supply nozzle.